Maryland Historical Trust

Maryland Inventory of Historic Properties number: WA-II-121

Name: 21047/MD858 (MAIN ST.) OVER LITTLE ANTIETAM CRK.

The bridge referenced herein was inventoried by the Maryland State Highway Administration as part of the Historic Bridge Inventory, and SHA provided the Trust with eligibility determinations in February 2001. The Trust accepted the Historic Bridge Inventory on April 3, 2001. The bridge received the following determination of eligibility.

MARYLAND HISTORICAL TRUST

Eligibility Recommended ___X___ Eligibility Not Recommended _____

Criteria: ___A ___B ___C ___D Considerations: ___A ___B ___C ___D ___E ___F ___G __None

Comments: _____

_____

_____

Reviewer, OPS: _Anne E. Bruder_____ Date: __3 April 2001____

Reviewer, NR Program: __Peter E. Kurtze_____ Date: __3 April 2001____

MARYLAND INVENTORY OF HISTORIC BRIDGES
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

MHT No. WA-III-121

SHA Bridge No. 21047 Bridge name MD 858 (Main Street) over Little Antietam Creek

LOCATION:
Street/Road name and number [facility carried] MD 858 (Main Street in Rohrersville)

City/town Rohrersville Vicinity ____

County Washington

This bridge projects over: Road____ Railway____ Water X Land ____

Ownership: State X County ____ Municipal ____ Other ____

HISTORIC STATUS:
Is the bridge located within a designated historic district? Yes ____ No X
National Register-listed district ____ National Register-determined-eligible district ____
Locally-designated district ____ Other ____

Name of district ____

BRIDGE TYPE:
Timber Bridge ____:
Beam Bridge ____ Truss -Covered ____ Trestle ____ Timber-And-Concrete ____

Stone Arch Bridge ____

Metal Truss Bridge ____

Movable Bridge ____:
Swing ____ Bascule Single Leaf ____ Bascule Multiple Leaf ____
Vertical Lift ____ Retractile____ Pontoon ____

Metal Girder____:
Rolled Girder ____ Rolled Girder Concrete Encased ____
Plate Girder ____ Plate Girder Concrete Encased ____

Metal Suspension ____

Metal Arch ____

Metal Cantilever ____

Concrete X:
Concrete Arch____ Concrete Slab ____ Concrete Beam ____ Rigid Frame ____
Other X Type Name Combination concrete slab and T-beam

DESCRIPTION:

Setting: Urban _____ **Small town** X **Rural** _____

Describe Setting: Bridge No. 21047 carries MD 858 (Main Street) over Little Antietam Creek in Rohrersville, Washington County. MD 858 runs in a generally north-south direction at this location. Little Antietam flows generally east-west through the town. The bridge is located at the northern end of MD 858 (Main Street) in Rohrersville, a small rural town, which is predominately surrounded by undeveloped land and farms.

Describe Superstructure and Substructure:

Bridge No. 21047 is a two-lane combination concrete slab and concrete T-beam bridge, one lane being a slab and the other a T-beam structure. The slab portion of the bridge is estimated in SHA files to have been built in 1922 and forms the west half of the bridge. The remaining elements of the original slab appear to correspond with SHA Standard Detail Sheets from 1922. The T-beam is estimated in SHA files to have been constructed in the 1930s, and it forms the east half of the bridge. This single span bridge has a 15 degree skew, a clear span of 18'-2"±, and a total length of 21'. The structure carries a 20'-0" roadway over Little Antietam Creek, and it has a clear roadway width of 23'-5". The out to out width is 25'-1", with the slab portion of the bridge measuring 11'-4" and the beam measuring 13'-9" of that length. The bridge has an asphalt wearing surface, and there is a sharp horizontal curve at the north approach. There are guardrails at all but the northeast corner. The bridge has solid concrete panelled parapets with a simple concrete coping stone. The west parapet is straight while the east parapet curves away from the road. Each of the reinforced concrete wingwalls is flared to varying degrees. The bridge is not posted.

Undermining and heavy scour of the north abutment has been noted in all inspection reports since 1986. This condition is the direct result of the stream channel alignment. Upstream, the channel has shifted to the west, causing undermining on the north abutment. In addition to scour, the inspection report from 1995 describes the bridge's condition as follows. The slab part of the bridge is hollow out to 5' from the bridge railing. There are numerous pop-outs under the slab portion of the bridge with exposed rebar. The slab also has light cracking with efflorescence and stalactites. The beam has many irregular cracks with hollow sounding areas, efflorescence and stalactites. In addition, the south abutment has areas of honeycombing, and the north abutment shows heavy scaling at and below the water line. The north wingwall has heavy deterioration at the end with hollow sounding areas, and all the wingwalls have scaling at the bottom.

Discuss Major Alterations:

The Maryland Department of Transportation files indicate that scour protection was approved in 1995. The original concrete slab was constructed in 1922, and the remaining elements of this bridge indicate it corresponded to SHA Standard Detail Sheets. The concrete T-beam was added sometime in the 1930s. SHA files contain no further records of repairs or alterations made to this bridge.

HISTORY:

WHEN was the bridge built (actual date or date range) The concrete slab was constructed in circa 1922. The concrete T-beam addition was built in the 1930s.

This date is: Actual _____ **Estimated** X

Source of date: Plaque _____ **Design plans** X **County bridge files/inspection form** _____

Other (specify) Maryland State Highway Administration bridge files.

WHY was the bridge built?

Local transportation needs.

WHO was the designer?
State Roads Commission

WHO was the builder?
State Roads Commission

WHY was the bridge altered?
The bridge was altered to widen it.

Was this bridge built as part of an organized bridge-building campaign?
Yes. This bridge was constructed as part of post World War I improvements to secondary roads.

SURVEYOR/HISTORIAN ANALYSIS:

This bridge may have National Register significance for its association with:
A - Events _____ B- Person _____
C- Engineering/architectural character _____

Was the bridge constructed in response to significant events in Maryland or local history?
Reinforced concrete slab bridges are a twentieth century structure type, easily adapted to the need for expedient engineering solutions. Reinforced concrete technology developed rapidly in the early twentieth century with early recognition of the potential for standardized design. The first U.S. attempt to standardize concrete design specifications came in 1903-04 with the formation of the Joint Committee on Concrete and Reinforced Concrete of the American Society of Civil Engineers.

Maryland's road and bridge improvement programs mirrored economic cycles. The first road improvement program of the State Roads Commission was a 7 year program, starting with the Commission's establishment in 1908 and ending in 1915. Due to World War I, the period from 1916 -1920 was one of relative inactivity; only roads of first priority were built. Truck traffic resulting from war-related factories and military installations generated new, heavy traffic unanticipated by the builders of the early road system. From 1920 to 1929, numerous highway improvements occurred in response to the increase in Maryland motor vehicles from 103,000 in 1920 to 320,000 in 1929, with emphasis on the secondary system of feeder roads which moved traffic from the primary roads built before World War I. After World War I, Maryland's bridge system also was appraised as too narrow and structurally inadequate for the increasing traffic, with plans for an expanded bridge program to be handled by the Bridge Division, set up in 1920. In 1920 under Chapter 508 of the Acts of 1920 the State issued a bond of $3,000,000.00 for road construction; the primary purpose of these monies was to meet the state obligations involving the construction of rural post roads. The secondary purpose of these monies was to fund [with an equal sum from the counties] the building of lateral roads. The number of hard surfaced roads on the state system grew from 2000 in 1920 to 3200 in 1930. By 1930, Maryland's primary system had become inadequate to the huge freight trucks and volume of passenger cars in use, with major improvements occurring in the late 1930s. Most improvements to local roads waited until the years after World War II.

With a diverse topographical domain encompassing numerous small and large crossings, Maryland engineers quickly recognized the need for expedient design and construction.

In the early years, there was a need to replace the numerous single lane timber bridges. Walter Wilson Crosby, Chief Engineer stated in 1906, "The general plan has been to replace these [wood bridges] with pipe culverts or concrete bridges and thus forever do way with the further expense of

the maintenance of expensive and dangerous wooden structures". Within a few years, readily constructed standardized bridges of concrete were being built throughout the state.

The creation of standard plans and a description of their use was first announced in the 1912-15 Reports of the State Roads Commission whereby bridges spanning up to 36 feet were to use standardized designs.

Published on a single sheet, the 1912 Standard Plans included those structures that were amenable to such an approach: slab spans, (deck) girder spans, box culverts, box bridges, abutments, and piers (State Roads Commission 1912). Slab spans, with lengths of 6 to 16 feet in two foot increments, featured a solid parapet that was integrated into the slab, with a roadway of 22 feet.

In the Report for the years 1916-1919, a revision of the standard plans was noted:

> During the four years covered by this report, it has been found necessary to revise our standard plans for culverts and bridges, to take care of the increased tonnage which they have been forced to carry. Army cantonments...increased their operations several hundred per cent, and the brunt of the enormous truck traffic resulting therefrom, was borne by the State Roads of Maryland. In addition to these war activities, freight motor lines from Baltimore to Washington, Philadelphia, New York, and various points throughout Maryland, and the weight of many of these trucks when loaded, was in excess of the loads for which our early bridges were designed (State Roads Commission 1920:56).

Published on separate sheets, the new standard plans (State Roads Commission 1919) for slab bridges reveal that the major changes was an increase in roadway width from 22 feet to 24 feet and a redesign of the reinforcement. The slab spans continued to feature solid parapets integrated into the span. The range of span lengths remained 6 to 16 feet, but the next year (1920) witnessed the issue of a supplemental plan for a 20 foot long slab span (State Roads Commission 1920).

The first portion of Bridge No. 21047 was constructed in 1922, apparently using SHA Standard Detail Sheets. Without original or as built plans, however, this supposition can not be confirmed. For reasons unknown the bridge was later altered to include a concrete T-beam. The T-beam portion of the bridge was constructed at a time when more refined methods of reinforcement had become available.

Early concrete bridge design included experimentation with different forms of steel reinforcing. Bar reinforcement became the predominant type in the early twentieth century, and is the reinforcement type encountered today; however, the predominant type through the end of the nineteenth century employed beams rather than bars. Scientific testing of materials in the late nineteenth and early twentieth centuries lead to the understanding that beam reinforcement required an inordinate amount of steel, and bar reinforcement began to be explored as a more efficient use of material.

When the bridge was built and/or given a major alteration, did it have a significant impact on the growth and development of the area?

Unknown.

Is the bridge located in an area which may be eligible for historic designation and would the bridge add to or detract from the historic/visual character of the potential district?
Yes. Bridge No. 21047 is located in an area which may be eligible for historic designation. The bridge would not detract from and has the potential to add to the historic and visual character of the potential historic district of Rohrersville.

Is the bridge a significant example of its type?
No. This bridge is not a significant example of either a concrete slab or a concrete T-beam. The structure does not retain the integrity of its original design, and many of the character defining elements of the substructure are in a deteriorated state.

Does the bridge retain integrity of important elements described in Context Addendum?
No. This bridge does not retain the integrity of its original design, but the addition of a concrete T-beam portion in the 1930s occurred in the historic period; the character defining elements from each construction phases are intact. A number of the elements are in a deteriorated state.

Is the bridge a significant example of the work of a manufacturer, designer, and/or engineer?
There are no state records which indicate this is a significant example of the work of a manufacturer, designer, or engineer.

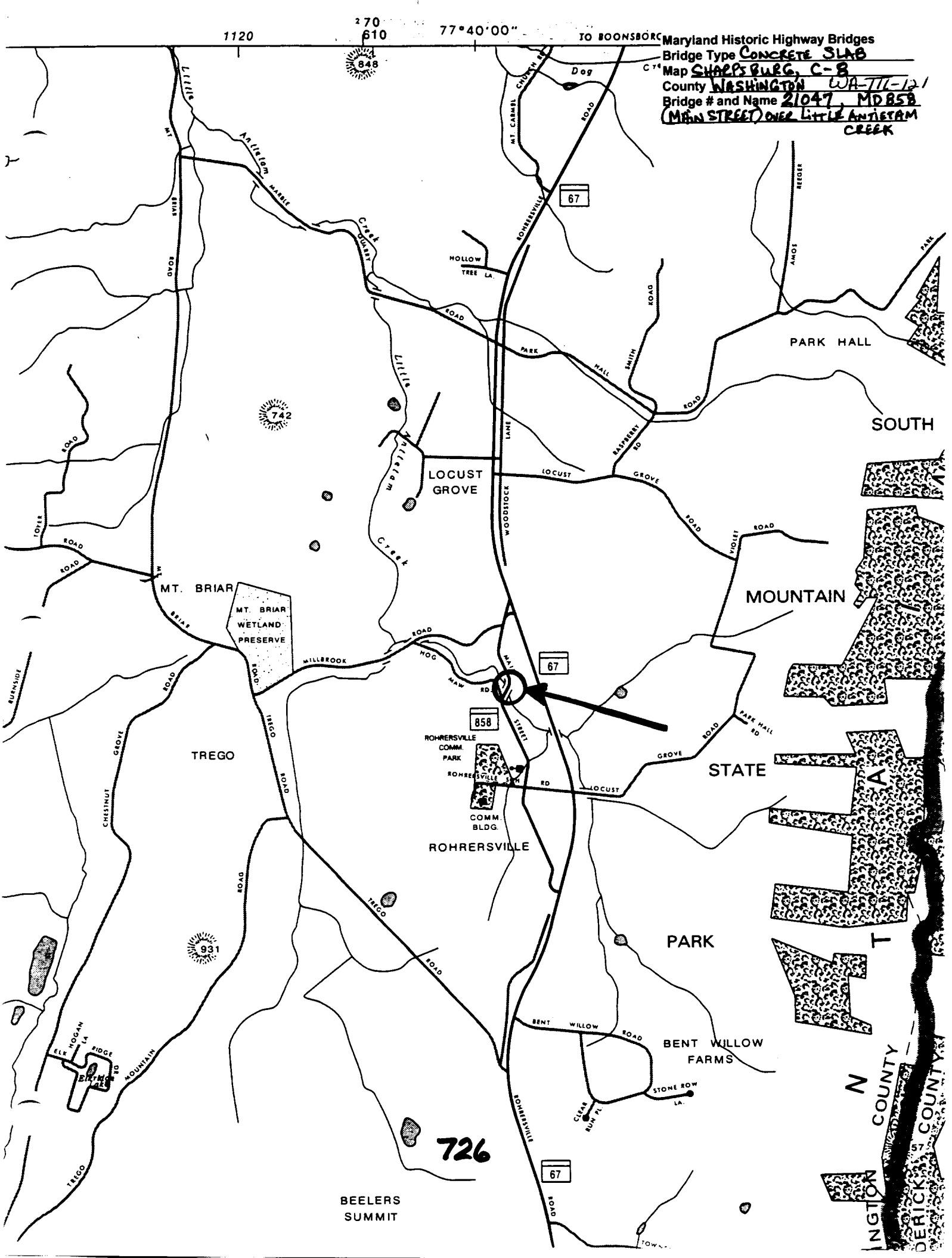
Should the bridge be given further study before an evaluation of its significance is made?
No further evaluation is necessary to determine the National Register significance of the bridge. Although it does reflect the expansion of secondary roads in Maryland after World War I, the condition of the bridge has placed its integrity in doubt. However, additional research concerning the history of the bridge and its relationship to the surrounding landscape would be useful in providing a more complete picture of the bridge's background and potential significance. Moreover, the town of Rohrersville should be evaluated as a potentially significant district.

BIBLIOGRAPHY:

County inspection/bridge files _____ **SHA inspection/bridge files** X
Other (list):

SURVEYOR:

Date bridge recorded August 1995
Name of surveyor Adrienne Beaudet Cowden
Organization/Address P.A.C. Spero & Company; 40 West Chesapeake Avenue, Suite 412; Baltimore, Maryland 21204
Phone number 410-296-1635 **FAX number** 410-296-1670


1120
270
610
77°40'00"
TO BOONSBORO
Maryland Historic Highway Bridges
Bridge Type CONCRETE SLAB
Map SHARPSBURG, C-8
County WASHINGTON WA-III-121
Bridge # and Name 21047, MD 858
(MAIN STREET) OVER LITTLE ANTIETAM CREEK
848
67
742
858
931
726
MT. BRIAR
MT. BRIAR WETLAND PRESERVE
LOCUST GROVE
TREGO
ROHRERSVILLE
COMM. BLDG.
ROHRERSVILLE COMM. PARK
PARK HALL
SOUTH MOUNTAIN
STATE PARK
BENT WILLOW FARMS
BEELERS SUMMIT
WASHINGTON COUNTY
FREDERICK COUNTY
Dog
Creek
Little Antietam Creek
MAIN STREET
WOODSTOCK LANE
RASPBERRY RD
LOCUST GROVE ROAD
VIOLET ROAD
PARK HALL RD
HOG MAW RD
MILLBROOK ROAD
TREGO ROAD
CHESTNUT GROVE ROAD
MT. BRIAR ROAD
TOPER ROAD
BURNSIDE
ELK RIDGE RD
HOGAN LA
BENT WILLOW ROAD
STONE ROW LA
CLEAR RUN PL
ROHRERSVILLE ROAD
MOUNTAIN ROAD
HOLLOW TREE LA
AMOS REESER PARK
SMITH ROAD
MT. CARMEL CHURCH RD
ANTIETAM MARBLE QUARRY ROAD
MT. BRIAR ROAD

BR # 2104710 WA-III-121

OVER LITTLE ANTIETAM CREEK

WASHINGTON CO., MD.

CHARLES ZIEGLER

2/24/95

S.H.A

NORTH APPROACH

1 OF 4

BR# 2104710 MP-III-121

OVER LITTLE ANTIETAM CREEK

WASHINGTON CO., MD.

CHARLES ZIEGLER

2/24/95

S.H.A

SOUTH APPROACH

2 OF 4

BR # 2104710 WA-III-121

OVER LITTLE ANTIETAM CREEK

WASHINGTON CO., MD.

CHARLES ZIEGLER

2/24/95

S.H.A.

EAST ELEVATION (UPSTREAM)

3 OF 4

BR #2109710 WA-III-121

OVER LITTLE ANTIETAM CREEK

WASHINGTON CO., MD

CHARLES ZIEGLER

2/24/95

S. H. A.

WEST ELEVATION (DOWNSTREAM)

4 OF 4